

REMARKS

Claims 1-10 are pending in this application. By this Amendment, claim 1-6 are amended, claims 7-10 are added and the Specification is amended for clarity. Support for the amendment to independent claim 1 can be found, for example, in Figs. 2 and 5, and p. 13, lines 16-22 and page 14, lines 12-17 of the specification. Support for new claims 7-10 can be found, for example, at p. 18, lines 27-28 (claim 7), p. 11, Figs. 1-3 and 5-7 (claim 8) and lines 26-28 (claims 9-10) of the specification. No new matter is added.

Applicants appreciate the courtesies shown to Applicants' representatives by Examiner Tietjen and Examiner Rivell during the October 21, 2008 personal interview. We appreciate that, following clarification of the term "root," Examiner Tietjen indicated that our arguments overcome the § 102(b) rejection of claims 1-6 over Browne I. Our arguments with respect to this rejection are presented below.

However, during the interview, Examiner Tietjen produced additional references that she believes disclose the features of independent claim 1, and indicated that a new rejection based on the disclosures of the references is possible. Accordingly, Applicants amend the claims to even further distinguish their patentable features over the additional references. In view of at least the following, reconsideration and allowance are respectfully requested.

I. Claim Objections

The Office Action objects to claims 5 and 6 as failing to provide proper antecedent basis for claimed subject matter and because it appears that the dependency should be changed. This objection is respectfully traversed.

Claims 4-6 are amended to provide proper antecedent basis for claimed subject matter. Accordingly, withdrawal of the rejection is respectfully requested.

II. Rejection Under 35 U.S.C. § 112, Second Paragraph

The Office Action rejects claims 4-6 as being indefinite. This rejection is respectfully traversed.

Claims 4-6 are amended as suggested by the Office Action and are definite. Accordingly, withdrawal of the rejection is respectfully requested.

III. Rejection Under 35 U.S.C. § 102(b)

The Office Action rejects claims 1-6 under 35 U.S.C. § 102(b) over U.S. Patent No. 6,394,417 (Browne I). This rejection is respectfully traversed.

As discussed during the personal interview, Browne I fails to disclose the combination of features recited in independent claim 1, including a diaphragm part formed extending in a curve, radially from the main body and including a root connected to the main body and positioned inside the diameter of the valve seat.

The Office Action alleges that the boss upper surface (212) in Browne I (Fig. 9C) corresponds to the root connected to the main body as recited in claim 1. However, the root is the base portion of the diaphragm part where the diaphragm part connects to the main body of the diaphragm valve element, and not an upper surface of any portion of the diaphragm valve element. Because the root is positioned inside the diameter of the valve seat, in the valve-closed state, the smaller area of the diaphragm part receives the liquid pressure from the liquid filling the groove, pressing the diaphragm valve element upward in the valve-open direction. As a result, the upward pressure exerted on the diaphragm part is decreased so that the urging force of the spring to close the diaphragm valve is reduced.

Browne I discloses a diaphragm E that includes a larger diameter central boss 208 and a support surface 200 provided with a corresponding flat 210 that may engage the boss 208 upper surface 212 when the diaphragm is in the open position (Figs. 9A-9C). Neither the specification nor the drawings in Browne I disclose a root connected to the main body and

positioned inside the diameter of the valve seat, as recited in claim 1. Thus, Browne I cannot teach the benefit that the upward pressure exerted on the diaphragm part is decreased so that the urging force of the spring to close the diaphragm valve is reduced.

Therefore, claim 1 is patentable over the art not yet of record. Claims 2-10 are also patentable at least for their dependency from claim 1 as well as for the additional features they recite.

IV. References Discussed During Interview

Examiner Tietjen advised Applicants at the October 21, 2008 personal interview that a new rejection is possible over U.S. Patent No. 7,063,304 (Leys), U.S. Patent No. 6,883,780 (Browne II) and JP 09-217845 (Yoshiro). Applicants traverse this potential rejection.

Examiner Tietjen asserts that Leys, Browne II and Yoshiro, disclose a root connected to the main body and positioned inside the diameter of the valve seat. However, none of these references, nor Browne I, discloses a diaphragm part formed extending in a curve, radially from the main body, the diaphragm part forming substantially a 270° arc in the valve-opened state, as recited in amended claim 1.

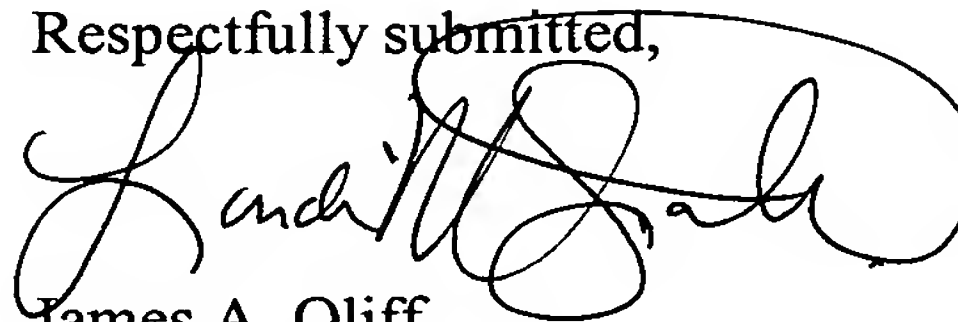
Therefore, claim 1 is patentable over Leys, Browne I and II, and Yoshiro. Claims 2-10 are patentable at least for their dependence from claim 1, as well as for the additional patentable features they recite.

V. Conclusion

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 1-10 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



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JAO:SGS/hs

Attachment:

Petition for Extension of Time
Marked-up Copy of the Originally Filed Specification
Clean Substitute Specification
Information Disclosure Statement

Date: November 25, 2008

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